

SEQUENCE LISTING

<110> Centro de Ingeniería Genética y Biotecnología

5 <120> Artificial promoter for the expression of DNA sequences in plant cells

<130> Artificial promoter

10 <140> 0000
<141> 2002-11-18

<160> 22

15 <170> PatentIn Ver. 2.1

<210> 1
<211> 86
<212> DNA

20 <213> Artificial sequence

<220>
<223> Artificial sequence description:
Translational enhancer Eureka.

25 <400> 1
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tttgacaaca caactaaaca accatg 86

30 <210> 2
<211> 198
<212> DNA
<213>

35 <220>
<223> Artificial sequence description:
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40 <400> 2
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ccaccacctc ctcttcacac caacacacac acaacagatc tcccccatcc tccctcccgt 120
cgcgccgcgc aacacctggt aagatggctg tgcgctcaga tatatatagt gatatgcact 180
acaaagatca taactagt 198

45 <210> 3
<211> 231
<212> DNA
<213>

50 <220>
<223> Artificial sequence description:
Synthetic fragment I-U/Ac.

55 <400> 3
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ttttccgtct cgtctcgatc tttggccttg gtagtttggg ggcgagaggc ggcttcgtcg 120
cccagatcgg tgcgcgtttt tttatttggg ggggcgggat ctgcgggctg ggtctcggcg 180
60 tgcggccgga ttctcgcggg gaatggggct ctcgatgtg gatccgagct c 231

<210> 4
 <211> 255
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 <213> Artificial sequence

<220>
 <223> Artificial sequence description:
 10 Synthetic fragment I-Ac/U.

<400> 4
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 agatcaggaa gaggggaaaa gggcactatg gtttaatttt tatatatattc tgctgctgct 120
 15 cgtcaggatt agatgtgctt gatctttctt tcttcttttt gtgggtagaa tttgaatccc 180
 tcagcattgt tcatcggtag tttttctttt gtcgatgctc accctgttgt ttgggtgtttt 240
 tatactagtg agctc 255

20 <210> 5
 <211> 93
 <212> DNA
 <213> Artificial sequence

25 <220>
 <223> Artificial sequence Description:
 Synthetic fragment Init.

<400> 5
 30 ctagtggcta tcctgacacg gtctctttgt caaatatctc tgtgtgcagg tataactgca 60
 ggaaacaaca acaataacca tgggtctagag ctc 93

<210> 6
 35 <211> 692
 <212> DNA
 <213>

<220>
 40 <223> Artificial sequence description:
 Artificial Exon/Intron/Exon ART.

<400> 6
 45 accaccacca ccaccaccac ctctctcttc acacaacaca cacacaacag atctccccc 60
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 agtgatatgc actacaaaga tcataactag accgcgcgct ccccccccc ccctctctac 180
 ctctctctct tctttctccg tttttttttt cgtctctgct tcgatctttg gccttggtag 240
 tttgggggag agaggcggtc tcgtcgccca gatcggtgct cgttttttta tttggagggg 300
 cgggatctcg cggctgggtc tcggcggtgc gccggattct cgcggggaat ggggctctcg 360
 50 gatgtggatc tgatccgcgc ttgttggggg agatatgggg cgtttaaaat ttcccatgc 420
 taaacaagat caggaagagg ggaagagggc actatgggtt aatttttata tatttctgct 480
 gctgctcgctc aggttagat gtgcttgatc tttctttctt cttttgtgg gtagaatttg 540
 aatccctcag cattgttcat cggtagtttt tcttttgtcg atgctacccc tgttgttttg 600
 55 tgtttttata ctagtggcta tcctgacacg gtctctttgt caaatatctc tgtgtgcagg 660
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<210> 7
 60 <211> 750
 <212> DNA
 <213>

<220>

<223> Artificial sequence description:

pBS-ART vector sequence between the restriction sites EcoRI and
SacI.

<400> 7

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10 cgcgcgcgcg aacacctggt aagatggctg tgcgctcaga tatatatagt gatatgcact 180
acaagatca taactagacc gccgcctccc cccccccccc tctctacctt ctctctttct 240
ttctccgttt tttttttccg tctcgtctcg atctttggcc ttggtagttt gggggcgaga 300
ggcggccttcg tcgccagat cgggtgcgctg ttttttattt ggagggcgcg gatctcgcg 360
ctgggtctcg gcgtgcggcc ggattctcgc ggggaatggg gctctcggat gtggatctga 420
15 tccgcggttg ttgggggaga tatggggcgt ttaaaatttc gccatgctaa acaagatcag 480
gaagagggga aaagggcact atggtttaat ttttatatat ttctgctgct gctcgtcagg 540
attagatgtg cttgatcttt ctttcttctt tttgtgggta gaatttgaat ccctcagcat 600
tgttcatcgg tagtttttct tttgtcgatg ctcaccctgt tgtttggtgt tttatacta 660
gtggctatcc tgacacggtc tctttgtcaa atatctctgt gtgcagggtat aactgcagga 720
20 aacaacaaca ataaccatgg tctagagctc 750

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<210> 8

<211> 757

<212> DNA

<213> Artificial sequence

<220>

<223> Artificial sequence description:

Artificial Exon/Intron/Exon ARTE.

<400> 8

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agtgatatgc actacaaaga tcataactag accgcgcgct cccccccccc ccctctctac 180
cttctctctt tctttctccg tttttttttt cgtctcgtc tcgatctttg gccttggtag 240
tttgggggag agaggcggtc tcgtcgccca gatcgggtgc cgttttttta tttggagggg 300
cgggatctcg cggctgggtc tcggcgtgcg gccggattct cgcggggaat ggggctctcg 360
40 gatgtggatc tgatccgcg ttgttggggg agatatgggg cgtttaaata ttcgccatgc 420
taaacaagat caggaagagg ggaaggggc actatgggtt aatttttata tatttctgct 480
gctgctcgtc aggattagat gtgcttgatc tttctttctt ctttttggg gtagaatttg 540
aatccctcag cattgttcat cggtagtttt tcttttgcg atgctcacc tggtgtttgg 600
tgtttttata ctagtggcta tcctgacacg gtctctttgt caaatatctc tgtgtgcagg 660
45 tataactgca ggaacaaat tgaacatcat tctatcaata caacacaaac acaacacaac 720
tcaatcattt atttgacaac acaactaaac aacctg 757

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<210> 9

<211> 815

<212> DNA

<213> Artificial sequence

<220>

<223> Artificial sequence description:

pPARTE vector sequence between the restriction sites EcoRI and
SacI.

<400> 9

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gaattctata tataggaagt tcatttcatt tggagccccc caaccctacc accaccacca 60
ccaccacctc ctccttcaca caacacacac acaacagatc tcccccatcc tccctcccgt 120

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cgcgccgcgc aacacctggt aagatggctg tgcgctcaga tatatatagt gatatgcact 180
acaaagatca taactagacc gccgcctccc ccccccccc tctctacctt ctctctttct 240
ttctccgttt tttttttccg tctcgtctcg atctttggcc ttggtagttt gggggcgaga 300
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5 ctgggtctcg gcgtgcggcc ggattctcgc ggggaatggg gctctcggat gtggatctga 420
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gaagagggga aaagggcact atggtttaat ttttatatat ttctgctgct gctcgtcagg 540
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10 tgttcacatcg tagtttttct tttgtcgatg ctaccctgt tgtttgtgt tttatacta 660
gtggctatcc tgacacggtc tctttgtcaa atatctctgt gtgcaggat aactgcagga 720
aacaaattga acatcattct atcaatacaa cacaacacac acacaactca atcatttatt 780
tgacaacaca actaacaac catggtctag agctc 815

15 <210> 10
    <211> 184
    <212> DNA
    <213> Artificial sequence

20 <220>
    <223> Artificial sequence description:
        Synthetic fragment En-Ac1.

25 <400> 10
    atcaccgtga gttgtccgca ccaccgcacg tctcgcagcc aaaaaaaaaa aaagaaagaa 60
    aaaaaagaaa aagaaaaaac agcagggtggg tccgggtcgt gggggccgga aaagcgagga 120
    ggatcgcgag cagcgacgag gccggccctc cctccgcttc caaagaaacg ccccccatca 180
    attc 184

30 <210> 11
    <211> 94
    <212> DNA
    <213> Artificial sequence

35 <220>
    <223> Artificial sequence description:
        Synthetic fragment En-Ac2.

40 <400> 11
    aagcttgata tccatagcaa gccagccca acccaaccca acccaaccca cccagtgca 60
    gccaaactggc aaatagtctc cacaccccg cact 94

45 <210> 12
    <211> 1087
    <212> DNA
    <213> Artificial sequence

50 <220>
    <223> Artificial sequence description:
        pAPARTE vector sequence between the restriction sites HindIII y
        SacI.

55 <400> 12
    aagcttgata tccatagcaa gccagccca acccaaccca acccaaccca cccagtgca 60
    gccaaactggc aaatagtctc cacaccccg cactatcacc gtgagttgtc cgcaccaccg 120
    cacgtctcgc agccaaaaaa aaaaaaagaa agaaaaaaa gaaaaagaaa aaacagcagg 180
    tgggtccggg tcgtgggggc cggaaaagcg aggaggatcg cgagcagcga cgaggccggc 240
    60 cctccctccg cttccaaaga aacgcccccc atcaattcta tatataggaa gttcatttca 300
    tttggagccc cccaacccta ccaccaccac caccaccacc tcctccttca cacaacacac 360

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acacaacaga tctccccat cctccctccc gtcgcgccgc gcaacacctg gtaagatggc 420
tgtgcgctca gatatatata gtgatatgca ctacaaagat cataactaga ccgccgcctc 480
ccccccccc cctctctacc ttctctcttt cttctctcgt ttttttttc cgtctcgtct 540
cgatcctttg ccttggtagt ttgggggcga gaggcggctt cgtcgcccag atcgggtgcgc 600
5 gtttttttat ttggaggggc gggatctcgc ggctgggtct cggcgtgcgg ccggattctc 660
gcggggaatg gggctctcgc atgtggatct gatccgcgct tgttggggga gatatgggc 720
gtttaaaatt tcgcatgct aaacaagatc aggaagaggg gaaaagggca ctatggttta 780
atttttatat atttctgctg ctgctcgtca ggattagatg tgcttgatct ttctttcttc 840
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aacacaaaca caacacaact caatcattta ttgacaaca caactaaaca accatggtct 1080
agagctc 1087

15 <210> 13
    <211> 31
    <212> ADN
    <213> Artificial sequence

20 <220>
    <223> Artificial sequence description:
        Synthetic fragment ASP.

25 <400> 13
    gtcgactgac gcttcgaatg acgcacatgc c 31

    <210> 14
30 <211> 1065
    <212> DNA
    <213> Artificial sequence

    <220>
35 <223> Artificial sequence description:
    p2A1PARTE vector between the restriction sites KpnI and SacI.

    <400> 14
40 ggtaccgggc cccccctcga ctgacgcttc gaatgacgca catgccatca ccgtgagttg 60
    tccgcaccac cgcacgtctc gcagccaaaa aaaaaaaaaa aaagaaaaaa aagaaaaaga 120
    aaaaacagca ggtgggtccg ggtcgtgggg gccggaaaaa cgaggaggat cgctgacgct 180
    tcgaatgacg cacatgcccg agcagcgacg aggccggccc tccctccgct tccaaagaaa 240
    cgccccccat caattctata tataggaagt tcatttcatt tggagcccc caaccctacc 300
    accaccacca ccaccacctc ctcccttcaca caacacacac acaacagatc tcccccatcc 360
45 tccctcccg tgcgcgcgcg aacacctggt aagatggctg tgcgctcaga tatatatagt 420
    gatatgcact acaaagatca taactagacc gccgcctccc ccccccccc tctctacctt 480
    ctctctttct ttctcgtttt tttttttccg tctcgtctcg atctttggcc ttggtagttt 540
    gggggcgaga ggcggttcg tcgccagat cgggtgcgcgt ttttttattt ggaggggcgg 600
    gatctcgcgg ctgggtctcg gcgtgcggcc ggattctcgc ggggaatggg gctctcggat 660
50 gtggatctga tccgccgttg ttgggggaga tatggggcgt ttaaaatttc gccatgctaa 720
    acaagatcag gaagagggga aaagggcact atggtttaat ttttatatat ttctgctgct 780
    gctcgtcagg attagatgtg cttgatcttt cttctctctt tttgtgggta gaatttgaat 840
    ccctcagcat tgttcacggt tagtttttct tttgtcgatg ctcaccctgt tgtttggtgt 900
    ttttatacta gtggctatcc tgacacggtc tctttgtcaa atatctctgt gtgcaggat 960
55 aactgcagga aacaaattga acatcattct atcaatacaa cacaaacaca acacaactca 1020
    atcatttatt tgacaacaca actaaacaac catggtctag agctc 1065

    <210> 15
60 <211> 1135
    <212> DNA

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<213> Artificial sequence

<220>

<223> Artificial sequence description:

5 p2APARTE vector sequence between the restriction sites SalI and SacI.

<400> 15

10 gtcgactgac gcttcgaatg acgcacatgc catccatagc aagcccagcc caaccaacc 60
 caaccaacc caccaccagt cagccaactg gcaaatagtc tccacacccc ggccactatca 120
 ccgtgagttg tccgcaccac cgcacgtctc gcagccaaaa aaaaaaaaaa aaagaaaaaa 180
 aagaaaaaga aaaaacagca ggtgggtccg ggtcgtgggg gccggaaaag cgaggaggat 240
 cgctgacgct tcgaatgacg cacatgcccg agcagcgacg aggccggccc tccctccgct 300
 tccaaagaaa cgcccccat caattctata tataggaagt tcatttcatt tggagcccc 360
 15 caaccctacc accaccacca ccaccacctc ctccttcaca caacacacac acaacagatc 420
 tcccccatcc tccctcccgt cgcgcgcgcg aacacctggt aagatggctg tgcgctcaga 480
 tataatatag gatatgcact acaaagatca taactagacc gccgcctccc ccccccccc 540
 tctctacctt ctctctttct ttctccgttt tttttttcgc tctcgtctcg atctttggcc 600
 ttggtagttt gggggcgaga ggcggcttcg tcgccagat cgggtgcgctg ttttttattt 660
 20 ggagggggcg gatctcgcg ctgggtctcg gcgtgcggcc ggattctcgc ggggaatggg 720
 gctctcggt gtgatctga tccgcggtt ttgggggaga tatggggcgt ttaaaatttc 780
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 gaatttgaat cctcagcat tgttcacggt tagtttttct tttgtcgatg ctcaccctgt 960
 25 tgtttggtgt ttttatacta gtggctatcc tgacacggtc tctttgtcaa atatctctgt 1020
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 acacaactca atcatattt tgacaacaca actaaacaac catggtctag agctc 1135

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 <211> 31
 <212> DNA
 <213> Artificial sequence

35 <220>
 <223> Artificial sequence description:
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<400> 16

40 gaaggtaccg ccatggtcta aaggacaatt g 31

<210> 17
 <211> 27
 45 <212> DNA
 <213> Artificial sequence

<220>
 <223> Artificial sequence description:
 50 Oligonucleotidic primer Oli-U2.

<400> 17

ctcctcgagg gcgtttaaca ggctggc 27

55 <210> 18
 <211> 186
 <212> DNA
 <213> Artificial sequence

60 <220>

<223> Artificial sequence description:
Synthetic fragment En-U2.

<400> 18

5 ggtaccgagc attgcatgtc taagttataa aaaattacca catatTTTTTT ttgtcacact 60
tgTTTTgaagt gcagTTTatc tatctTTata catatattta aactTTactc tacgaataat 120
ataatctata gtacaacaat aatatcagtg tTTtagagaa tcatataaat gaacagttag 180
acatgg 186

10

<210> 19

<211> 563

<212> DNA

<213> Artificial sequence

15

<220>

<223> Artificial sequence description:

Maize ubiquitine-1 gene derived transcriptional enhancer sequence
(region from -299 a -855).

20

<400> 19

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tgTTTTgaagt gcagTTTatc tatctTTata catatattta aactTTactc tacgaataat 120
ataatctata gtacaacaat aatatcagtg tTTtagagaa tcatataaat gaacagttag 180
25 acatggTcta aaggacaatt gagtattttg acaacaggac tctacagttt tatctTTTTa 240
gtgtgcatgt gttctccttt tTTTTgcaa atagcttcac ctatataata cttcatccat 300
tttattagta catccattta gggTTtaggg ttaatggttt ttatagacta atTTTTtag 360
tacatctatt ttattctatt ttagcctcta aattaagaaa actaaaactc tattTTtagtt 420
tttttattta ataatttaga tataaaatag aataaaataa agtgactaaa aattaaacaa 480
30 atacccttta agaaattaaa aaaactaagg aaacattttt cttgtttcga gtagataatg 540
ccagcctgtt aaacgccctc gac 563

<210> 20

35 <211> 1692

<212> DNA

<213> Artificial sequence

Secuencia <220>

40 <223> Artificial sequence description:

pU3ARTE vector sequence between the restriction sites KpnI and
SacI.

<400> 20

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tgTTTTgaagt gcagTTTatc tatctTTata catatattta aactTTactc tacgaataat 120
ataatctata gtacaacaat aatatcagtg tTTtagagaa tcatataaat gaacagttag 180
acatggTcta aaggacaatt gagtattttg acaacaggac tctacagttt tatctTTTTa 240
gtgtgcatgt gttctccttt tTTTTgcaa atagcttcac ctatataata cttcatccat 300
50 tttattagta catccattta gggTTtaggg ttaatggttt ttatagacta atTTTTtag 360
tacatctatt ttattctatt ttagcctcta aattaagaaa actaaaactc tattTTtagtt 420
tttttattta ataatttaga tataaaatag aataaaataa agtgactaaa aattaaacaa 480
atacccttta agaaattaaa aaaactaagg aaacattttt cttgtttcga gtagataatg 540
ccagcctgtt aaacgccctc gactgacgct tcgaatgacg cacatgccat ccatagcaag 600
55 cccagcccaa cccaacccaa cccaaccac cccagtgcag ccaactggca aatagtctcc 660
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aaaaaagaaa gaaaaaaaag aaaaagaaaa aacagcaggt gggTccgggt cgtgggggcc 780
ggaaaaagcga ggagatcgc tgacgcttcg aatgacgcac atgcccagc agcgacgagg 840
ccggccctcc ctccgcttcc aaagaaacgc ccccatcaa ttctatatat aggaagtcca 900
60 tttcattttg agcccccaa ccctaccacc accaccacca ccacctctc cttcacaca 960
cacacacaca acagatctcc cccatcctcc ctccgctgc gccgcgcaac acctggtaag 1020

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atggctgtgc gctcagatat ataatgtgat atgcactaca aagatcataa ctagaccgcc 1080
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tgcgcggttt tttatttga ggggcgggat ctgcggtg ggtctcgcg tgcggccgga 1260
5 tttcgcggg gaatggggt ctcggatgtg gatctgatcc gccgttggtg ggggagatat 1320
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tcttcttttt gtgggtagaa tttgaatccc tcagcattgt tcatcggtag tttttctttt 1500
gtcgatgctc accctgttgt ttggtgtttt tatactagtg gctatcctga cagggtctct 1560
10 ttgtcaaata tctctgtgtg cagggtataac tgcaggaaac aaattgaaca tcattctatc 1620
aatacaacac aaacacaaca caactcaatc atttatttga caacacaact aaacaacat 1680
ggtctagagc tc 1692

15 <210> 21
    <211> 223
    <212> DNA
    <213> Artificial sequence

20 <220>
    <223> Artificial sequence description:
        Synthetic fragment GLU.

25 <400> 21
    ctcgagatac atattaagag tatggacaga cttttcttta aaaaactcca tttgtattac 60
    tccaaaagca ccagaagttt gtcattggctg agtcattgaaa tgtatagttc aatcttgcaa 120
    agttgccttt ccttttgtag tgtgtttttaa cactacaagc catatattgt ctgtacgtgc 180
    aaaaaactat atcccatgt atcccaagat gctttttttaa ttc 223

30 <210> 22
    <211> 1032
    <212> DNA
    <213> Artificial sequence

35 <220>
    <223> Artificial sequence description:
        pGARTE vector sequence between the restriction sites XhoI and SacI.

40 <400> 22
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    tccaaaagca ccagaagttt gtcattggctg agtcattgaaa tgtatagttc aatcttgcaa 120
    agttgccttt ccttttgtag tgtgtttttaa cactacaagc catatattgt ctgtacgtgc 180
    aaaaaactat atcccatgt atcccaagat gctttttttaa ttctatatat aggaagtcca 240
45 tttcatttgg agcccccaa cctaccacc accaccacca ccacctctc cttcacacaa 300
    cacacacaca acagatctcc cccatcctcc ctcccgctgc gccgcgcaac acctggttaag 360
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    gcctcccccc cccccctct ctaccttctc tctttctttc tccgtttttt ttttccgtct 480
    cgtctcgatc tttggccttg gtagtttggg ggcgagaggc ggcttcgctg ccagatcgg 540
50 tgcgcgtttt tttatttga ggggcgggat ctgcggtg ggtctcgcg tgcggccgga 600
    ttctcgcggg gaatggggt ctcggatgtg gatctgatcc gccgttggtg ggggagatat 660
    ggggcggtta aaatttcgcc atgctaaaca agatcaggaa gaggggaaaa gggcactatg 720
    gtttaatttt tatataattc tgctgctgct cgtcaggatt agatgtgctt gatctttctt 780
    tcttcttttt gtgggtagaa tttgaatccc tcagcattgt tcatcggtag tttttctttt 840
55 gtcgatgctc accctgttgt ttggtgtttt tatactagtg gctatcctga cagggtctct 900
    ttgtcaaata tctctgtgtg cagggtataac tgcaggaaac aaattgaaca tcattctatc 960
    aatacaacac aaacacaaca caactcaatc atttatttga caacacaact aaacaacat 1020
    ggtctagagc tc 1032

60

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